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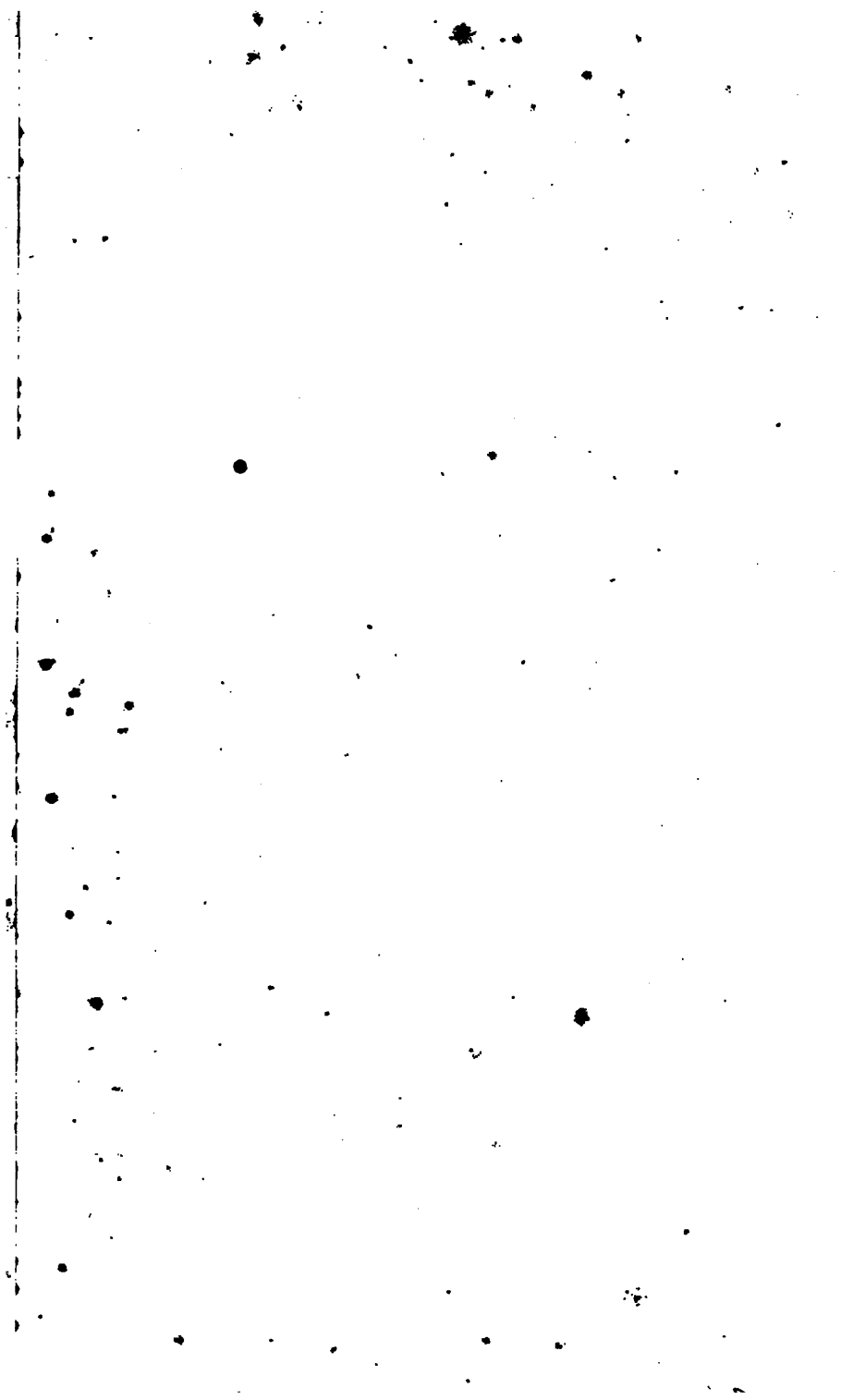




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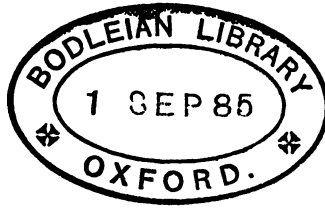
SOME ELEMENTARY REMARKS  
REGARDING  
SENSATION AND PERCEPTION,  
AND  
A PHYSICAL HYPOTHESIS  
FOLLOWING THEREON,  
AND  
SOME REMARKS ON SPACE.

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## SOME ELEMENTARY REMARKS

REGARDING

# SENSATION AND PERCEPTION.

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My object is to propound a Hypothesis which may very possibly become a sound theory by further Physical discovery.

But it is first necessary to make some elementary remarks Regarding Sensation and Perception from points of view which may perhaps be peculiar to myself.

I doubt if any one—any Metaphysician or any one—held the doctrine of a Representative Perception other than as a modification of the mind caused by the External object in a way they knew not and therefore used the word "Representative" Metaphorically to express that way. The pure Idealist of course cannot properly use the word in any manner—Metaphorical or otherwise—nor can he properly use the word "Perception" at all—for he holds there is nothing external of the mind to be perceived and consequently nothing to be Represented in any sense. To say he perceives a modification of his mind is to him nothing more than that he has a "Sensation."

I doubt if any one—any Metaphysician or any one—held the doctrine that our conceptions of absent, though existing, objects are Representations in any sense of Images—though that word was and is often used—used, as I think, always Metaphorically. They are however Representations in this sense—equally to the Idealist as to the Realist—that they being former Perceptions of things now recalled are *so far* similar and *so far* copies. Strictly speaking, they are simply former vibrations of the nerves recalled—repeated by our volition.

I believe the greater part of the differences amongst Metaphysicians to consist of disputes of logic and misunderstandings of meanings. The nature of their Mythical subjects never admitted of expressions sufficiently defined that one could put into another's mind the exact idea in his own mind which he intended to express.

We are all yet so ignorant of the things intimately connected with the contact, or identity, of what we call Matter and Mind that there is necessarily too much vagueness in the very ideas of

what we would be at—not merely of the final questions we are seeking a solution of, but in those necessary to be previously determined—for it to be otherwise. Though I believe in that case that many a pair of these Metaphysicians, had they but spent half an hour in each other's company, would have come to a much clearer understanding of what each meant on the very subject they have been at loggerheads the most; and possibly the mutual comparison and explanation might have left them with less faith in Metaphysics and a little more acknowledgment of their indebtedness to Physics.

The real truth is, not one particle of light or discovery has ever arisen from purely Metaphysical inquiries or considerations. Whatever real discoveries Metaphysicians have announced are simply cases of Kleptomania from Physical discoveries dished up in a different form and called "Psychology" instead of "Physiology." And when Physicists have discovered more of what Sensation is, we will know much better of the Relations between what we call Mind and what we call Matter, and how far the one is a product of the other, or whether they are only different forms of the same essence. The present researches going on as to the origin of Life will probably lead much towards this.

I view that sofa before me and the furniture, pictures, etc., in the room I sit in; and I will suppose a friend beside me who never thought of these things otherwise than the generality of mankind do.

All my Perception of these things is mediate, but that one element which gives me a plane surface (or spherical if you will) of colours and lights and shades. My friend thinks he has an Immediate Perception of the figure, solidity, and various distances of these. I know that their figure, solidity, and all the distances but the exactly transverse ones are only Conceptions from former Perceptions of like things which I have so often handled and tested that I know I would not find myself deceived by going forward and handling these before me now. But to both of us the plane surface of colours and lights and shades and those distances exactly transverse are really an Immediate Perception. These qualities, as well as the entire objects before us, appear to us both to be external of our own bodies, and so all the more external of our minds. I know, however, that the colours, lights, and shades are Sensations, either *in* my mind, or, as I hold, *in contact* with my mind—either way, *within* my organism. I have the consciousness, however, that these things *appear* to me to be *out* of my mind and out of my organism, and yet so connected with what I feel in my mind that I may call these *appearances* outside "colours," etc., and the Sensation inside a modification of my mind produced by them, or producing them, according as they



may turn out to be real or only apparent, or I may call the modification of mind the "colours," etc., and the appearances to be some unknown modification of some substance unknown, but which I am constrained to think a Reality. In any way of it the Sensation *in* the organism gives the Perception of the appearances as *external* of it. Now, I know from Physical Research, that these modifications of my mind come either from an image on the Retina of the Eye, or from Rays striking upon or passing through the Retina, and I am conscious that the outside appearances are together in their transverse direction many times larger than the entrance to the Retina of my Eye. Let the room and its contents be swollen to the magnitude of the largest temple, or reduced to a nut shell, myself and all my organism being swollen or reduced in like proportion, everything will appear to me the same size in both cases, and the measure of the pupil of my eye across that sofa before me will always be the same many number of times. Here, then, we have the consciousness of two different things or sets of things. One of them certainly in, or in immediate contact with, the mind, the other apparently out of the mind and out of the organism. I do not here consider the vexed question of whether these instructions of our now consciousness be according to our original consciousness or only acquired. These remarks being only prefatory to what I am going to Hypothesise.

It is true we have not an Immediate Perception even of the *actual* transverse distances, but we have of their *proportions* one to another upon any one surface, and that is all that is necessary for my argument, viz., that we have an Immediate Perception of some things appearing external of our mind which are the *foundation* of all our knowledge by vision.

The difference as to a man born blind would be that he could never have Perceptions of these objects before me, but by each time walking up to them and handling them. But his faculties for this purpose being so acute by practice, he would realise them in infinitely less time than I with sight, but going up blindfold. His Perceptions of them, like my own at present, would be both Immediate and Mediate. But his Immediate ones would be through the Sensation of Hardness instead of colour, etc. His much greater practice of forming Conceptions, aided by an intensely acute Hearing Power, would save him much.

Again, I will suppose we have adjourned to another room. And now when we recall to mind the sofa, furniture, pictures, etc., the difference between that part of our former Perceptions of them, which I call Mediate, and the corresponding part of our now Conception is this, that in the former case we were immensely aided by various circumstances which we are now de-

prived of, and so can only form our Conception—that is, recall our former Perceptions—in a comparatively feeble manner. And this raises the question, How is it that we were then conscious of the presence of these things, and we are now conscious of their absence? It is, that in the former case, if they were Realities, we had the *Immediate* Perception of the transverse extended surface of the lights and shades from them in direct contact with our mind at the point of sense, whereas in the latter case we had not that, but *had to form a Conception* of the transverse extension, as well as of all the other particulars which in combination restored the objects to our mind as we had before seen them. If these things were not Realities but only appearances, then as I am not an Idealist, I leave the Idealists to explain this matter. But whether these things were Realities or only appearances, upon either theory we *formerly* could not, for said reason, help thinking them before us and external of ourselves; whereas *now* we can dismiss or recall them at our pleasure, and of this difference we upon both theories have had the consciousness. It arises, then, to ask, How in the former case our *Mediate* Perceptions of the longitudinal, angular, and other distances not exactly transverse, were not as much feebler than the *Immediate* Perceptions of the exactly transverse ones, and of the colours, as all the Conceptions in the latter case were feebler than *any* of the Perceptions in the former case? It is just a similar case as above referred to regarding the acuteness of the man born blind. Our constant practice from infancy has enabled us to so readily connect one with the other, and more or less justly to estimate what would be the result if we went forward and handled them and measured them with our fingers. This example will flash the difference, and the entire explanation, before any mind. I can stand in front of St Paul's Church and very accurately estimate the various distances before me. I measure them very much by the standard of my own body, which is always the same. Let me go to the top of St Paul's and look far over the country. Every one knows how much I will be misled. There are many of the prospects which will appear to me only a surface, notwithstanding all my efforts from experience to correct this; and in most of the prospects, where they don't appear as surfaces, I will still be very far mistaken in my estimate of the distances. Now, let me return to a room, and I will recall all of both what I saw when at foot and when at top of St Paul's—in both cases all equally pretty well. It is the Real *Immediate* Perception of one part and the so very accurately acquired Perceptions now recalled of another part of the object in the more near and familiar cases; or, just as well, the inaccurately acquired in the less near and familiar, which tells us the things we see are *present*, whether we judge accurately or not of their pro-

portions and distances. It is the want of that *Immediate* part, and by consequence of the acquired part of these Perceptions, which tells us the things we recall are *absent*.

I don't see what explanation the Idealist can give, viewing both the Immediate and Mediate Perceptions on the one hand and the Conceptions of recalling on the other hand, the first as well as the last, nothing else but modifications of mind—nothing in either case external of it—but that our present consciousness of the presence in the one case, and of the absence in the other case, of the “appearances,” has resulted from his “association of ideas” having modified our mind just so in the one case that we are without the power of dismissing them except by shutting or turning away our eyes, and just so in the other case, that we *have* the power of dismissal.

Again, there is a third kind of Conception—Imagination. My first kind of Conception is, as I have shown, just all that Mediate Perception which constitutes nearly all our Perception of objects beyond the reach of our body, all but that Immediate part which consists in the transverse plane or sphere of points before us. My second kind is just the recall of the same objects with our eyes shut or ourselves removed out of sight of them. Now, of my third kind, the simplest form of it is as if we supposed the sofa suspended in the air outside the house. The next, the combination of one part of an object we have seen (or felt) with a part of another, as the imagination of a centaur, a mermaid, etc. Then we can go on to all the most complicated forms external and internal of our minds—such as painters, poets (and, not least, Metaphysicians), delight in. But these, and still more the metaphysical subject of “Conception and Possibility,” are apart from the present discourse.

I will now propound my Hypothesis, proceeding upon physical grounds, as to what may very possibly become sound Theory by future Physical Research.

Let the “Senses” be Sight, Sound, Smell, Taste, and Resistance from Touch. Let their effects on our organism when in operation be called “Sensations,” and the knowledge which these sensations communicate to the mind of Real or Supposed objects external of the mind be called “Perception.” I use the words “Real” and “Supposed” to signify respectively the “Realist” and the “Idealist” Hypothesis.

But, first, I hypothetise, as a preliminary, that these Sensations are themselves external of the mind. That they are caused by either mechanical alteration, *pro tempore*, of the organism; or by chemical change, momentarily and immediately restored, as the process of muscle decomposed and immediately restored by

the nutrition from the blood. I eliminate as abnormal the case of chemical change not immediately restored, as in the case of too great glare of light upon the eye, or too great strain upon it when attempting to see an object too much within the focus, a blow upon the head, the taste of an acid diluted just to cause slight corrosion, etc. These kinds of cases cause pain which I eliminate, as also I eliminate that abnormal "pleasure" which is sometimes caused by certain chemical changes (though I hold that such pleasure has resulted from a previous violation of the laws of Nature which can give pleasure from what is deleterious to the system, at any rate to the normal system). And here, by the way, I will dismiss the "Sensation" of normal "Pleasure" as affording no "Perception" to the mind of anything whatever beyond itself. Also, Heat and Cold, which have nothing to do with the mind beyond the "pain" or "pleasure" "satiated" to the mind by their effect on the organism mechanical or chemical. No pain, nor any pleasure, *per se*, gives any information to the mind whatever beyond itself.

Though by this Preliminary Hypothesis the "Sensations" do not constitute the mind, yet they are in contact with it. They are vibrated through the nerves to the mind wherever that may be, or of whatever it may consist. Possibly the mind may be just these vibrations themselves, and nothing else. These vibrations may be the Perceptions themselves, in which case they are the mind; or they may be only communications to something else, which is the mind. Perception being just another name for such communications. If the Sensations themselves constitute the mind, then they are not external of it; and there is no real difference between the Sensation and the Perception—only different aspects of the same thing. That, however, is not my Hypothesis. My present Hypothesis is, that the Sensations are the connecting link between what is generally called mind and what is generally called matter—between the Ego and the non-Ego—between the subject perceiving and the objects external of the mind (but which may or may not be external of the body) which are perceived; and this is all I mean by saying the Perceptions are the knowledge which the Sensations communicate or give to the mind.

Sensation, then, by this, is simply that link; and Perception the result, viz.,—that we become possessed by the Sensation of something else from it, viz.,—the knowledge of Things entirely on the other side of both—Things different from the Sensation, though more or less in contact with it, and on the other side of it than that on which the mind is in contact with it—Things of which themselves we thereby know but are not conscious of, but are conscious we do know them—conscious, as the result of

having the Sensation, that we know them. I separate the Sensation from the knowledge of the objects as two different things, and I separate both from the consciousness of having that knowledge. They are all three different things, not merely different aspects of the same.

Reid fell back on the doctrine of an Immediate Perception of External Things because he was compelled to admit that our Sensations have no resemblance to External Things. But I am now to hypothetise that they have. That our "Sensations" are either the same as the qualities in external matter, or are their counterpart. This is the Hypothesis referred to in the title-page.

1. *Sight*.—It is very remarkable that although Sight be so valuable to us—I had almost said the most valuable of our senses—yet true it is and of verity that by it alone we have but one idea as a basis of knowledge, viz., the idea of transverse dimension through colour alternating, or through Light and Shade which is just the compound of all colour alternating with nothing—(viz., White and Black)—or degrees of them. I am to show that colour through which that idea of transverse dimension comes is a Sensation in our mind which is the same thing or its counterpart as that in the object external of our body.

I view a Black Board with letters on it, or stripes, of White, Red, Blue and Green. The Light of day upon it is the vibrations of the molecules through the air reflected from various other surfaces. Those vibrations which strike the Black surface have found a material vibrating so that the sets of vibrations coincide. There is, therefore, no reflection. We say the Light is absorbed. No rays come from it to affect our optic nerve, and there is no Sensation in our mind at all. In saying it is a Black colour, we are not correct unless we mean by Black colour no colour, i.e. nothing.

Those vibrations which strike the White surfaces have found a material vibrating so that none of those striking that matter will coincide with any of that matter's own vibrations. They are, therefore, all reflected, and such of them as come to and pass through the apparatus of the eye affect my optic nerve so that I have a sensation in my mind we call White.

Those which strike the Red surfaces have found a material vibrating so that all the various kinds of the vibrations striking it excepting one kind of them have found coinciding vibrations in that matter. That remaining kind only is reflected back and such as come back in the direction of my eye and pass through its apparatus affect my optic nerve so that I have a sensation which we call Red.

Similarly as to the Blue.

Similarly as to the Green excepting that here there are *two* kinds of vibrations which find no coincidence, and had it been one or other of them only the resulting sensation would have been respectively Blue or Yellow, but being both it is what we call Green.\*

Now, whether the Image, upon our Retina, be an accident—an accident necessarily arising from the optical organism, but no way necessary to action upon the optical nerve—or whether the optical nerve take its action from the Image. In either way, the matter of the organism of the nerve and the animal sensorium must receive the vibrations of Light—of colour—in the same manner as any other matter out of our body—that is, the physical action upon the organism in immediate contact with our mind—wherever that may be—whether at the optical nerve, or after the vibrations have passed through all our nerves, or any other where—must either be the very same forms of vibrations of colour or their exact counterparts as those entering the matter of the colours on this Board.

Let this Board be removed into the dark so as no Light to fall on it. Were it possible to apply an optic nerve and animal sensorium to the different portions of matter, a sensation would assuredly arise in that sensorium of whiteness from the application of the nerve to the Black material, of Blackness from its application to the White—more correctly no sensation,—of that of a compound of all the colours of Light excepting Red from its application to the Red material, of all but Blue from its application to the Blue, and of all but Blue and Yellow from its application to the Green material. Therefore, it conclusively follows that these counterparts are the very same things which act upon our sensorium when they, as the contras of their counterparts, do vibrate through the lenses of the eye, and that the things which give us our idea of transverse dimension by the sense of Sight are the very same Things, as counterparts of them, as are in the object external of our body, and are directly and “*Immediately perceived.*”

2. *Taste.*—I have before me a dish of sugar, and a dish of salt, and a dish of mixture of both. I taste the sugar, and upon its desolution with my saliva the muscles and nerves of my palate are so acted upon that I have that sensation known as the sweetness of sugar. In like manner the salt and the mixture. In each of the three, or at least two cases, a different form of vibration is produced by the chemical action upon my palate, and is conveyed by my nerves to contact with my mind.

\* Perhaps the later discoveries point to these vibrations not being so much one compound of two, but an intermediate interlapping. But the argument is the same either way.

Whether my mind be just that vibration throughout my nerves or something more internal, the Sensation is only in the locality of where the nerve vibrations begin: The consciousness of that sensation is vibrated further internally, and is something different. Perhaps in the case of the mixture, instead of the vibration being a separate form in kind, it is a compound of the other two forms, and the sensation of taste produced by it a compound, as in colour it was supposed a Blue and Yellow vibration give a Green.

Now, if we could transfer the requisite proportions of the saliva and muscles and nerves of the palate to each of the three dishes before me, and produce that part of the mere physical element of the chemical action which comes from the Blood Life, then, had the molecules of the contents of these dishes, as they would lie thus desolved in the respective dishes, nerves of sensation so as to be consciously sentient, these molecules *in the* dishes would have respectively the very same sensation which we call the sweetness of sugar, the bitterness of salt, and that taste which is a compound of the two.

3. *Smell*.—The application of the foregoing to the action of the vapouric ether from the Rose upon the nasal nerves is obvious.

4. *Sound*.—Though much analogy between it and Sight they are certainly quite different. But I wish to pass on, and to the close with the chief of all the senses, viz.:

5. *Resistance from Touch*.—Causing the Sensation in contact with the mind which I will call "Hardness;" and the Perception in the mind of something in the object out of the mind which I will call "Solidity."

When I walk with the point of my stick striking the pavement I have at each stroke the consciousness in my mind of a sensation of hardness from the stone, of sensations of hardness from the handle of the stick, and of softness from the muscles of my fingers, and of a sensation of some sort from my arm. I believe that last sensation to be more or less throughout my arm, but when my attention is moved to it my mind is attracted to some locality where it is more prominent to the exclusion of the less prominent.

Now, the sensation of hardness *from* the stone gives a Perception in my mind of solidity *in* the stone. This is undoubtedly acquired, and I have no "Immediate" knowledge of the stone or of anything in it or about it, only a knowledge of the sensation in contact at the point of sense, with my mind. The sensation from my arm is not constantly felt, as are those from the handle of the stick and from my fingers. It is only felt upon each blow upon the pavement. It is probably only from the motion of the muscles. But whether or not the consciousness I have of it my

mind is undoubtedly original ; for to suppose it acquired in any manner involves not merely that our present mental constitution is acquired, but that the relations between our physical and mental constitutions have been fundamentally and essentially altered since our birth. The sensations from the handle of the stick and from the fingers give Perceptions in my mind of solidity in the stick and in the fingers respectively, and I for the present leave it an open question whether *they* are acquired or original. But I remark that the two sensations (the one from the stick and the one from the fingers) are quite distinctly separate from one another. They are both indeed nothing but degrees of hardness or softness. But, like as the sensations from the stick pressed by three fingers are not the very sensations as those from the fingers pressed upon themselves only and not upon the stick, so we on pressing the stick itself perceive distinct separation between the three sensations from the stick and the three sensations from the fingers. This idea of separation may be entirely acquired, and it may only be of degree in hardness and not of anything different in kind. But still we do now perceive distinctly separate sensations in different localities which is all I at present want for my argument.

Now, are not all these sensations just of the same form of vibrations of molecules beginning in and from the pavement, going all through the stick, the fingers, and then through my nerves till they arrive at the point of sense ? The Idealist indeed holds that it is there only, viz., the point of sense, the only reality is—all the previous being only appearances, and our notions of it only acquired by association. But grant that question either way, either that the pavement and *its* vibrations are real, or that they are only modifications of our mind, I hypothetise that that pavement real or apparent were it consciously sentient then as a reality it would be conscious of the same exact sensations upon each contact with the stick as my mind is, or as only an appearance it would have as much the appearance to my mind of possessing these sensations as a horse has to my mind of quivering under the lash of a Brute's whip which, by the Idealists' hypothesis, is nothing but a modification of my own mind—as much as the notions I have of the existence of Natural Philosophers who have contrived communication in a few minutes between London and Calcutta by the vibrations of molecules along a wire—and who have explained that and many other discoveries to us ; while their own existences and their discoveries are by the Idealists' hypothesis but imaginations—modifications—of my own mind, following each other by certain laws.

When the present researches into the origin of Life are



sufficiently advanced, we shall then be on the way towards knowing what Consciousness really is.

In the meantime, for the delectation of any reader of the foregoing who may take an interest in the after-going, I add a dissertation on

#### METAPHYSICAL SPACE.

Space is nothing at all in itself—only dimension *of*, or from and to individual objects of Matter. It is not Extension as I would use that word. I would use the words "Extension" and "Space"—viz. "Extension" to signify "length" in its single, twofold, or more fold aspects, applied to individual objects of matter *within* them. "Space" to signify "distance" in its single, twofold, or more fold aspects, applied to individual objects of matter *from* one to another, or from or to one or more parts of one or another.

In this view "Extension" must be of something in itself, either really so or apparently so. And "Space" has not even apparently anything in itself. (And this view distinguishes between "length" and "distance." Extension being of length of matter. Space being of distance from one matter to another).

Space in a tea-cup is a finite quantity of distance. The porcelain occupies space, but is not the space itself. It is measured by its lengths in thickness and its inner and outer circumferences, and that is extension to these degrees of length. We can conceive the porcelain removed and some imaginary thin matter for the inner and outer circumferences, and then we have space—finite space—measured by their corresponding distances.

Beyond the tea-cup, if we find no other object, we have no further conception of space, but we call it "infinite," by which we can have no other idea than that wherever there be a further object the distance to it is beyond our powers to conceive, and this just amounts to the conception of Nothing.

Now let us imagine as far into the confines of existence as we can. No Thing before us, if we can. Then suppose two tall poles rising perpendicularly before us, and as the only material existence so far distant from us. Suppose they have the appearance of being some dozen feet apart, and of some hundred feet high—of course, at the distance from us we suppose them they would be infinitely higher and more apart. But their *apparent* height and distance apart would entirely depend upon what existences we are at sametime imagining to be more near to us. Now it is difficult to conceive Nothing beyond them. We are so constantly habituated to see a sky above the horizon, and, at

the least, an ocean of water below it, that after some difficulty we come down to the conception of white light and nothing else. Let us conceive all around and beyond these poles to be the Blackness of darkness (and that is really and truly a conception of Nothing). Then let us suppose the poles to be of iron at a red or white heat, so that they may be conceived visible. (Is this not now really conceiving a "termination to space"?) I now inquire how I come to have the idea of that "distance" between these poles—and for which purpose I first inquire how I come to have the idea of "length" in regard to the height of the poles. And in this inquiry my language must be allowed for in this, that whereas I wish the argument to apply to "Resistance from Touch," as supposed to be experienced by one Born Blind, as well as to "Sight," yet I must often use expressions as if only to one of these modes of experience while I intend application to both.

I view two points on my left arm—bared—which are to me the minimum visible, which is, of course, a different size to different persons and to the same person at different times, but neither that nor its reduction to a lesser point by a magnifying glass affects the following argument. There are also points of minimum tangibility. If I press two of my right hand fingers separately on these two points of my left arm, I can, by more or less pressure, have sensations more acute or thicker accordingly; but there are other kinds of material on which experiments can be made to illustrate this of the minimum tangibility better. The "Sensations" coming to me from these two points in my arm, whether through my eyes by sight or through my two fingers by touch, are distinctly recognised by me in my consciousness as coming to the point of sense from *two different directions*. I am distinctly conscious of an immediate—a direct—perception of two different directions in which the two separate and distinct sensations appear to come from the points on my arm felt by my two fingers, or seen by my eye—the further separate the points, the more distinctly separate the two directions appear to me in my consciousness.

Now let me view two points on one of the red-hot poles of iron (say from some cause or other appearing black, or some other colour than red), then view a third point intermediate between these two, then intermediate points between these again, and so on till we have as many points as make a line of such points with distance between them less than the minimum visible; and from the very fact of there being a minimum visible, we can have as many points so as all of them will overlap one another.\* In other words, we have a Black or other

\* This agrees not only with the Theory of Light radiating from points, but also with the present theory of Molecular vibration.

coloured line, amongst this pole up and down. This is the whole idea we have of linear distance, and it solely arises from experience by our "sense" from things external, or appearing external, of us. Superficial area is just many of such lines of distance parallel and closer than the minimum visible, also overlapping. Solid measure, or "cubical area," is just a number of planes of such lines, but you can take their measurements in all and any direction you please by supposing the fundamental lines accordingly. For such purposes as mathematical measurements and calculations, we can in theory suppose a point without dimension and a line without breadth, but there is really no such thing in Nature to our experience, and though we may "suppose" them we cannot form any "Conception" of them.

"Extension," then, is an aggregate of particles of matter as small as our senses are perceptible of; and its idea in our mind is that sensation we have of some of these particles affecting our perception of them from different directions. Just as the different directions from which their Physical media, acting upon our organism through our senses of sight or touch, do appear to come are more or less apart, so we have the idea of a greater or lesser extension. And by numbering intermediate directions, or limiting ourselves to two extremes, we have parts, or a whole, of a "measure."

Applying this to "Space," we can have no Conception whatever without we imagine something "Material." Some portion of what we call "Matter"—or some quality of it. This imagination may have two forms.

1st. We may conceive, say, such an extension of a gaseous fluid of a sky blue colour, or, as the utmost abstraction I can myself make, a surface of white light, and endeavour to abstract our mind from any circumference, and from all other matter.

2nd. We may conceive two portions of "Matter," each as far as we can, the one on our left, and the other on our right, and as far distant from us as we can, and endeavour to abstract from our mind the conception of intervening matter gaseous or otherwise, or any intervening quality of matter. Similarly, we may start with ourself here, and abstracting from our mind all other matter, and its qualities endeavour to find a point of Matter, or a something of Nothing, as far in a direct line from us here as we can.

The first case is solely a product of the second, upon the principles I have been laying down as to the formation of our ideas of extension—and, as I hold, all borrowed from our ideas of Matter or its qualities.

The second case cannot come into our mind without we have in our original sensation-perception lines of matter either single or many so close and numerous as to form a superficial area

upon the foregoing principles. Reverting to the red hot poles, what we call the space between them, whether superficial area, or cubical area, can be conceived in no other way than by that action upon our organism which metaphysicians call "Sensation," having originally, in actual contact with rays of light, or with an object itself by touch, produced the effects I have indicated. The first original contacts bringing to us the actual "Perception" of them, and by habit and association, we are afterwards enabled to recall the *resulting* effects in "Conception."

When I think of the Suns, the Stars, etc., beyond our systems, and as existing in so called Infinite Space, I only think of them in White Light, or of Blueish Light, as at night; and after stretching my imagination to the utmost extent of this space that I can, I can close it all up by a boundary of Blackness of darkness, which is really and truly Nothing; and here, then, I have as complete an idea of Finite Space as I have of anything else that we call Finite.

Though Finite can only be of the particular, we may conceive a species to be limited to those individuals of it we know, and then that species becomes a Final particular, and so up to that ultimate general, viz., "Existence." I can conceive all these I know to be its all—hence it becomes a Limited particular, and therefore Finite. I do so by conceiving the region comprising the most distant Stars to have a circumferential Blackness of darkness, which is really and truly a boundary of Nothing—that is, the circumference of existence is its own boundary, and outside of that there is nothing. That is, Space and Existence, both conceived of as Finite.

I cannot conceive "Infinite" Space, nor anything "Infinite;" just because all we can mean by such word is something which is said to be longer or greater or more than we can conceive ere it has reached Finality.

If I view a pair of parallel Rails till they unite in vision; that is only their points on my Retina have become so small and close there as to be less than the minimum visible; and this pair of Rails will thus have become as much Finite to me as anything else I know of as Finite. If I see them go over a Horizon as still much separate, there is then just as much Finality—they become just as much Finite.

If the foregoing remarks be sound, Then there is an End—a Termination—to Space and to Matter, in our Conception. A more difficult question arises, viz., TIME. It is but the Revolution of Matter. But we cannot Conceive the annihilation of all Matter just because we cannot Think without the consciousness of ourself and the present existence of the Matter our Mind is in immediate contact with. Possibly the Physical Researches into

the origin of Life may come to enlighten us somewhat as to what Consciousness is and open up some data as to Matter and Time that will better aid our considerations of these subjects. Between ourselves—I mean, between the Reader and myself—I have little doubt that Divines as their best foundation must adopt a Pantheism of elementary vibration which we may call Matter or Mind as convertible terms—and not that either is the product of the other but as in aspect—but that whatever you call the one, the other is its product in aspect. I think Saint Paul must have been a kind of Pantheist: His foundation being Mind, and Matter its product. I could reconcile this with Modern Science by Hypothesising that the Supreme Mind is vibration throughout the Universe of Nature: That that vibration becomes to our senses what we call “Matter.” (It is well known that the greater the vibration the intenser the solidity), and we have now every reason to suppose that these vibrations produce first Vegetable Life, following on to “Sensation” in some vegetable cases, and then Animal Consciousness and Perception. But —

Probably future Physical Research will demonstrate that that which Physicists call “Force and Law” is just the Master Mind, and that He produces Animal Mind by first, through Mineral, Vegetable, and Animal Organisation, a Physical Structure of Matter, viz., a combination of Nerves, and a specific arrangement of Nerves—such as Phrenologists say are in our Brain—which give us the original character of the Animal, as a mere Mechanical and Chemical arrangement, but with the same Life as a Vegetable, and that this is the only thing “Intuitive,” we have—all else being communications from without, modifying and altering that character as it grows (as Topsy did) from first fetus onwards. In so growing, The Communications we Receive from External Things act upon these organs by way of first coming through the “knowing” organs, and while acting upon those organs which are the Media of our Feelings, Desires, and Passions, they are Compounded into myriads of complicated forms through those organs which are our Reflective ones.

All this still leaves the Responsibility upon each Individual man of Improving himself according to these circumstances in which he finds himself and the lights he receives, in all countries and ages, from “Revelation”—Revelation, “Divine” or “Natural.” Unfortunately, it is only a small minority who trouble themselves to so improve themselves. Yet it is that kind of improvement which constitutes the difference between the Intelligent and the Ignorant. It is not classical or any other kind of instruction to him by others—so called “Education”—which does so.

















































































































